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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,873	12/15/2006	Giuseppe Conti	291050US0X PCT	8677
22850	7590	08/05/2011	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.			QIAN, YUN	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	
			1732	
			NOTIFICATION DATE	
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			08/05/2011	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/578,873	<b>Applicant(s)</b> CONTI ET AL.	
	<b>Examiner</b> YUN QIAN	<b>Art Unit</b> 1732	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 16-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-13 and 53-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 23, 2011 has been entered.

### ***Status of Claims***

Claims 1, 3-13 and 53-62 remain for examination. Claims 1, 3-4 are amended. Claims 2 and 15 have been canceled. Claims 14 and 16-52 have been withdrawn to non-elected inventions. Claims 53-62 are newly added claims.

### ***Previous Grounds of Rejection***

Regarding claims 1 and 3-13, the rejection under 35 U.S.C. 103(a) as being unpatentable over Garoff et al. (US 6,200,923), and further in view of Luciani et al (US 5,278,117) is amended as claim is amended to incorporate the subject matter of claim 14.

A new ground(s) of rejection is made with respect to newly added claims as follows.

***Amended Ground(s) Rejection***

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Garoff et al. (US 6,200,923), and further in view of Luciani et al (US 5,278,117).

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Regarding claims 1 and 6, Garoff et al discloses polymerization catalyst  $(\text{MgX}^3_2)_x\text{TiX}^4_4(\text{R}(\text{COOR}')_n)_y$  containing magnesium (i.e.  $\text{MgCl}_2 \cdot 3\text{EtOH}$ , applicant's magnesium, chloride ion and organo-oxygenated protic compound  $\text{D}_p$ ), titanium tetrahalide (i.e.  $\text{TiCl}_4$ ), and ester (i.e. di-undecylphthalate, diethyl phthalate and ethyl octyl phthalate and phthalic acid ester, applicant's neutral electron-donor aprotic compound D).

Garoff et al. teaches a molar ratio of  $\text{Mg/Ti}=1.55$ ,  $\text{EtOH/D}=0.3$ ,  $\text{D/Ti}=1.0$ , when  $\text{X}^3 = \text{X}^4 = \text{Cl}$ ,  $x=3$ ,  $\text{Cl/Ti}=10$  (Table 3 example 3, col.7, lines 31-41, claims 3-5).

Although Garoff et al. does not specifically teach the inorganic solid support material as per applicant's claim 1, Luciani et al. teaches a supported catalyst for ethylene polymerization containing a granular solid support with titanium alcoholate (i.e.  $\text{Ti}(\text{OBu})_4$ ) and magnesium chloride in hydrocarbon. The molar ratio of  $\text{Ti/Mg}$  is 1/1, and the formula  $\text{Ti}(\text{OR})_4 \cdot (1-6)\text{MgCl}_2$  indicates the molar ratio of  $\text{Cl/Ti}=2-12$  (abstract, claims 1-8), the residual ester (i.e. ethyl acetate) quantity is between 0 and 20%wt, which is encompassed by the instant claim.

Silica (40-85%wt) taught by Luciani et al. has a mean diameter of 40  $\mu\text{m}$ , BET 307  $\text{m}^2/\text{g}$ , total porosity 92.6%, and mean pore radius 132  $\text{\AA}$  (col. 6, lines 1-15, claims 1-8)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Garoff et al. and Luciani et al. to obtain the invention as specified in the claims 1 and 6, motivated by the fact that the catalyst system is highly active and can produce ethylene polymers with a molecular weight

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distribution varying from narrow to wide, because the magnesium chloride is deposited in highly active amorphous form on a porous support (col. 1, line 19-col. 2, line 2).

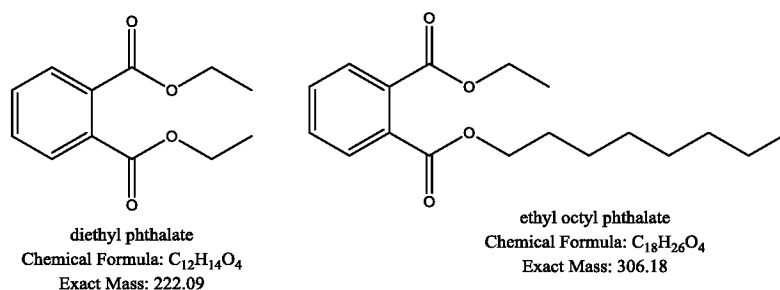
Product-by-process limitation in the claim 1 is noted. It is considered while the product of the reference is made by a different process, the product made and disclosed is the same as being claimed. see "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802,218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113)

Regarding claim 3-5, as discussed above, the inert granular solid taught by Luciani et al. is silica (40-85%wt), which has a mean diameter of 40  $\mu\text{m}$ , BET 307  $\text{m}^2/\text{g}$ , total porosity 92.6%, and mean pore radius 132 Å (col. 6, lines 1-15, claims 1-8). It meets the limitations of the instant claims.

Regarding claim 7, as discussed above, the molar ratio of ethanol to diundecylphthalate is 0.3, which is encompassed by the instant claim.

Regarding claims 8-9, ethanol disclosed by Garoff et al. corresponds to applicant's organo-oxygenated protic compound Dp, wherein  $R=CH_3$ ,  $Am=CH_2$ .

Regarding claim 10, diethyl phthalate and ethyl octyl phthalate taught by Garoff et al. corresponds to applicant's aprotic electron-donor compound D. It is a non-metallic organic ester compound having 12 or 18 carbon atoms as shown below (Table 7, col. 13-14):



Regarding claims 11-12, Luciani et al. teaches electron donor compound such as ethyl acetate as the instant claims (claim 8).

Regarding claim 13, the wt% of titanium taught by Garoff et al. is from 5.3% to 7.4%, which is encompassed by the instant claim (Table, 7, col.13-14).

### ***New Ground(s) Rejection***

#### ***Claim Rejections - 35 USC § 103***

Claims 53-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined references of Garoff et al. and Luciani et al as applied to claim 1 above.

Regarding claim 53, as discussed above, the inert granular solid taught by Luciani et al. is silica (40-85%wt), which has a mean diameter of 40  $\mu m$  (col. 6, lines 1-15, claims 1-8). It meets the limitations of the instant claims.

Regarding claims 54-62, the claimed process limitations, i.e. titanium compound, and the form of magnesium compound, atomic ratio Mg/Ti, D/Ti, reaction temperature, %wt of compounds of Mg and Ti dissolved, evaporation, reaction time, Dp/D ratio in step (d), etc. are not given patentable weight, because claims are interpreted as “product-by-process” claims, the patentability of a product does not depend on its method of production.

### ***Response to Arguments***

#### ***With regards to the previous Grounds of Rejection***

Applicant's arguments filed on May 23, 2011 have been considered but are not persuasive. The examiner would like to take this opportunity to address the Applicant's arguments.

Applicants argue that the final product of Garoff et al is not obtained by a process which includes addition of a protic compound after formation of the catalytic solid precursor for precipitation of the compound of titanium and magnesium. This process of preparation of the catalyst solid component is completely different from that described in Garoff et al, and strongly implies an undoubted structural difference in the products obtained (Remarks, page 17-18).

As discussed above, the patentability of product-by-process claims is based on the product itself (not the process). Where the end products (i.e. the solid component of catalysts) are the same, the process of making limitations does not have been given weight in ex parte examination. Even though product-by-process claims are limited by



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and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by- process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.

The difference between the process taught by Garoff et al. and that instantly claimed is the instant claim adding the oxygenated protic compound  $D_p$  at last step (d).

However, as discussed above, the final product of Garoff contains a molar ratio of EtOH/electron-donor  $D = 0.3$ , which meets the instant claimed range ( $D_p/D = 0.1$  to  $1.2$ ).

Therefore, the rejection stands.

As such, the rejection of claims 3-13 and 53-62 as discussed above is proper and stands.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/  
Examiner, Art Unit 1732

August 1, 2011

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1732